

Zihao (Harry) Liu

harryrrah0706@gmail.com | +4407529933910

LinkedIn: <https://www.linkedin.com/in/zihao-l-6164771bb/>

EDUCATION

University of Edinburgh

Edinburgh, United Kingdom

Master's Degree in High Performance Computing

Sep. 2023 – Aug. 2024

- Member of TeamEPCC - Participated in the International Supercomputing Conference (ISC) Student Cluster Competition (SCC), held in Germany at May 2024.
- **Grade:** Merit

University of Bristol

Bristol, United Kingdom

Bachelor's Degree in Electrical and Electronic Engineering

Sep. 2019 – Jun. 2023

- **Grade:** Second Class Honours (First Division).

WORK EXPERIENCES

Arm

Manchester, United Kingdom

Graduate Engineer (Rotating in SMMU Team)

Sep. 2024 – Present

- RTL Design Rotation (4 months):
 - Refactored shared parity and SAR modules to enhance maintainability.
 - Developed a Python script to parse parity module instantiation usage across the codebase, generating an Excel report for analysis and design optimization by eliminating redundant parameters.
 - Ran synthesis for area analysis and conducted Logic Equivalence Checking to ensure functional correctness.
 - Performed Static Timing Analysis to identify critical paths limiting clock frequency.
 - Developed three custom JasperGold lint rules to enhance code quality.
 - Gained familiarity with Arm's Reliability, Availability, and Serviceability (RAS) standards.
- Formal Verification Rotation (4 months):
 - Implemented, stabilized and maintained two formal testbenches for design verification.
 - Applied abstraction techniques and leveraged free variables to verify complex priority logic efficiently without duplicating RTL logic while reducing the complexity.
 - Analyzed design specifications and collaborated with architects to gain comprehensive block understanding while mitigating common-mode failures.

Huawei Technologies Research & Development (UK) Ltd

Edinburgh, United Kingdom

Research Intern

Apr. 2024 – Aug. 2024

- Enhanced existing Gem5 checkpointing infrastructure to support CPU research.
- Generated Gem5 checkpoints for client-server applications (e.g., Redis, MySQL) after reaching a steady state and initiating query processes using atomic CPUs, enabling restoration with timing CPUs for further research.
- Worked on restoring QEMU-based snapshots (checkpoints) using Gem5 atomic and timing CPUs.
- Developed a Python tool to parallelize the restoration of multiple checkpoints and automate the launch of multiple Gem5 simulations with identical configurations but varying boot scripts.
- Created and customized root file systems, disk images, and kernels for QEMU and Gem5.

Arm

Manchester, United Kingdom

Hardware Engineering Intern

Jul. 2023 – Mar. 2024

- Interned in the System Memory Management Unit (SMMU) Design Team.
- Worked on an existing Python-based register generation workflow to automate RTL register host block and UVM functional coverage testbench creation, reducing discrepancies and eliminating redundant, error-prone coding.
- Designed four SystemVerilog templates that generated RTL code for 40+ register host blocks and over 100,000 lines of UVM register coverage and model testbenches.
- Enhanced the workflow by implementing Python scripts to support designer-defined register guarding conditions and other tool improvements, increasing maintainability.
- Actively participated in technical discussions on design and timing fixes, gaining insights into industry best practices.

Huawei Technologies Research & Development (UK) Ltd

Cambridge, United Kingdom

Research Intern

Feb. 2023 – Jun. 2023

- Designed and implemented CI/CD pipelines from scratch for the Turing Core Team using GitLab CI and Jenkins.

- Optimized computational resource allocation by setting up a Kubernetes machine cluster for testing.
- Customized Docker images for multiple test environments and integrated them into the Kubernetes cluster.
- Developed Jenkins pipelines for nightly regression, merge requests, and other workflows, leveraging plugins for cross-pipeline triggering and email notifications.
- Created a Python-based test report generation tool using Pandas to analyze LLVM testsuite logs, providing numerical and graphical regression statistics.

FixMyCrack

Bristol, United Kingdom

Technician

Aug. 2022 – Jan. 2023

- Repaired and refurbished mobile devices, including screen and battery replacements for iPhone 6 to 11.
- Collaborated with technicians and assisted in market research for branch locations in Exeter and Southampton.
- Delivered excellent customer service by clearly explaining repair processes to non-technical customers, ensuring satisfaction with the service.

SKILLS & INTERESTS

Skills: English (Fluent), Chinese (Native), SystemVerilog, RTL Design, Formal Verification, Python, C, Linux, Git, CI/CD

Interests: Badminton, Football, Volleyball, Hiking, Board Games, League of Legends